

TWO RED SEA FLATHEADS (PLATYCEPHALIDAE) IMMIGRANTS IN THE MEDITERRANEAN

by

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ABSTRACT. - Two Red Sea platycephalids *Papilloculiceps longiceps* (Ehrenberg) and *Sorsogona prionota* (Sauvage) are reported for the first time from the Mediterranean, off the coast of Israel. *Platycephalus indicus* (Linnaeus) was reported much earlier from the same area. It is assumed that these three species reached the new geographical region by way of the Suez Canal.

RÉSUMÉ. - Deux platycéphalidés de la Mer Rouge, *Papilloculiceps longiceps* (Ehrenberg) et *Sorsogona prionota* (Sauvage), ont été pêchés pour la première fois en Méditerranée, sur la côte israélienne. *Platycephalus indicus* (Linnaeus) avait été signalé depuis longtemps dans cette même région. Ces trois espèces ont probablement atteint cette nouvelle région géographique par le Canal de Suez.

Key-words: Platycephalidae, *Papilloculiceps longiceps*, *Sorsogona prionota*, MED, Israel, Lessepsian migration.

A single specimen of flathead *Papilloculiceps longiceps* (Ehrenberg) 345mm standard length was collected on 19 December 1986 from a catch of a commercial trawler operating off Haifa Bay. Further study of platycephalids in the Hebrew University Fish Collection (HUJ) revealed a specimen of another Red Sea species, *Sorsogona prionota* (Sauvage) labelled as collected from the Mediterranean, coast of Israel. These two platycephalids are in addition to another colonizer of Red Sea origin, *Platycephalus indicus* (Linnaeus) reported earlier from the eastern Mediterranean (Ben-Tuvia, 1953). No platycephalids were known to inhabit the Mediterranean Sea before the opening of the Suez Canal.

Colonization of the Mediterranean Sea by fishes of Red Sea origin is an ongoing process, new species still being discovered. Golani (1987) cited 43 Red Sea fish species found in the eastern Mediterranean. Spanier and Goren (1988) added *Tetrasomus gibbosus*; the present addition of the two platycephalids brings the total number of the Lessepsian (Suez Canal) migrants to 46.

MATERIAL AND METHODS

Basic morphomeristic counts and measurements follow Hubbs and Lagler (1947). Lengths in material examined are given in standard length. Total and standard length were measured to the nearest mm from the tip of the lower jaw, while head and snout were measured to the nearest 0.1mm, from the center of the symphysis of the upper jaw. Only scales with tubes were counted in the lateral line. The last dorsal and anal rays which were divided almost to the base were counted as a single ray. Gill raker counts did not include rudiments. The raker at the angle

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of the arch was counted with the lower limb count. The nomenclature of the spines and ridges on the head followed Knapp (1986).

PAPILLOCULICEPS LONGICEPS (CUVIER, 1829)

(Fig. 1)

Platycephalus longiceps (Ehrenberg MS) Cuvier, in Cuv. & Val. 1829, *Hist. nat. Poiss.* 4: 255-256. Massawa.

Material examined

Mediterranean: HUI 11882, 345mm ♂, Haifa Bay, 19 December 1986, trawl. Gulf of Aqaba: HUI 5177, 395mm ♀, Elat, October 1949; HUI 9002 ♀, 410mm, Nuweiba, 14 August 1977, spear gun; HUI 13496, 284mm, Ras Muhammed, 17 September 1967. Gulf of Suez: HUI 5728 (2 spec.) 395-403mm, ♂ ♂, 20 January 1972, A-Tur; HUI 10541, 129 mm, 12 September 1968, A-Tur.

Description of the mediterranean specimens

Dorsal rays I-VIII-11; anal rays 11; pectoral rays 21; pelvic rays 1-5; caudal rays 11; tubed lateral-line scales 53; gill rakers 1 + 5 (Table I). Body depth 10.4; head length 2.8, all in SL. Snout 2.9; eye diameter 6.4; interorbital 13.1; upper jaw 2.8; lower jaw 2.4, all in head length.

Body elongated with depressed head. Five prominent nuchal spines. Small upper and large lower opercular ridges. Suborbital ridge on the right with one spine under posterior part of eye (no spine on the left). This ridge terminates with small preopercular spine. Very small supplemental preopercular spines. Supraorbital smooth with only minute spinulate on its posterior edge. A single preocular spine. Two spaced parietal spines. Lower jaw projected with narrow band of small teeth. Band of small sharp teeth on maxilla, widening towards the anterior. No teeth at the symphysis. Vomerine and palatine patches on each side of the mouth roof with small teeth. Distinct papilla on the upper surface of eye.

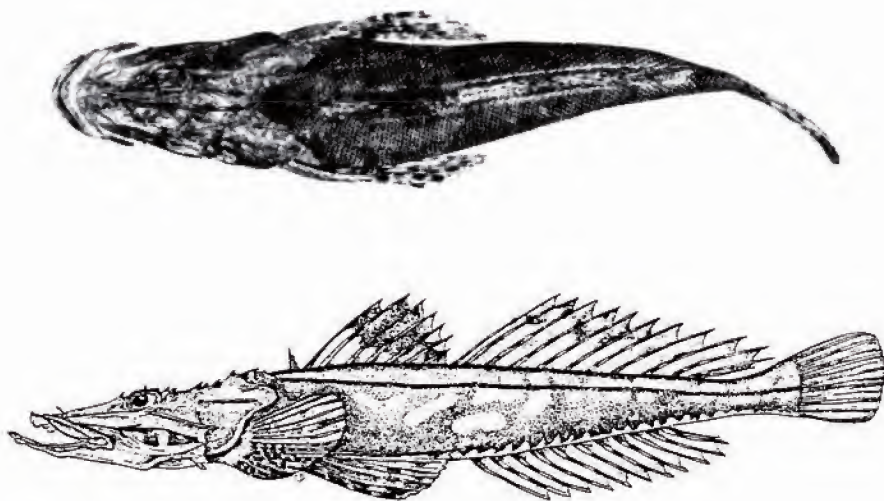


Fig. 1: *Papilloculiceps longiceps* 345 mm SL, Haifa Bay, HUI 11882.

Table I: Proportional measurements expressed as percentage of SL, and counts of *Papilloguliceps longiceps* and *Sorsogona prionota* from the Mediterranean Sea and the Red Sea (numbers in parentheses represent the most common count).

	<i>Papilloguliceps longiceps</i>		<i>Sorsogona prionota</i>	
	Medit.	Red Sea n = 6	Medit.	Red Sea n = 23
Total length (mm)	414	155-485	160	52-239
Standard length (mm)	345	129-410	136	46-205
Head length	35.1	33.3-36.4	37.5	35.6-39.4
Snout length	11.9	11.4-12.9	10.9	10.3-12.4
Body depth in front of D.	9.6	9.5-12.0	11.2	11.3-14.1
Eye diameter	5.5	5.0-6.2	9.0	7.4-10.4
Upper jaw length	12.4	11.8-12.4	13.4	12.8-15.4
Lower jaw length	14.3	13.0-14.5	15.1	14.1-16.3
Dorsal spine count	1+8	1+7-8(1+8)	1+8	1+8
Dorsal soft ray count	11	11	12	11-12(12)
Anal ray count	11	11	12	11-13(12)
Pectoral ray count	21	21	20	19-21(20)
Lateral line scale count	53	51-54	50	50-53(51-52)
Spinulated lateral line scale count	-	-	18	15-23(19-22)
Gill raker count	5+1	1+4-5(1+5)	2+8	2-3+7-9(2+7-8)

Color (in alcohol)

Dorsal part of body brown, ventral white. Spiny dorsal fin grey with dark blotches. Soft dorsal, pectoral, pelvic and anal fins with dark blotches and spots on white-grey background (Fig. 1).

Remarks

This species is common in the northern Red Sea, usually inhabiting sandy bottom, at depth of 2-20 m, in the vicinity of coral reefs. It was reported from the Suez Canal by Gruvel and Chabanaud (1937) under the name *Platycephalus longiceps*. Out of the Red Sea this species is known from the Gulf of Aden and the eastern shores of Africa as far south as Durban and Madagascar (Knapp 1983).

SORSOGONA PRIONOTA (SAUVAGE, 1873)

(Fig. 2)

Platycephalus prionotus Sauvage, 1873. *Nouv. Arch. Mus. Hist. Nat. Paris*, 8: 57, Red Sea.

Material examined

Mediterranean: HUI 200, 136mm, coll. H. Steinitz. Gulf of Aqaba: HUI 5467 (4 spec.), 129-143mm, ♀ ♀, 20 Jan. 1940; HUI 12614 (8 spec.), 111-205mm (2 ♂ ♂, 6 ♀ ♀), 5 Sept. 1960; HUI 13260, 169mm, ♀, 1 May 1988, Elat, trammel net; HUI 13484 (5 spec.), 46-157mm, (2 ♀ ♀, 3 sex undetermined) 11 Jul. 1984, Elat, commercial beach seine; HUI 13498 (3 spec.), 115-149mm, ♀ ♀, 12 Sept. 1985, experimental beach seine. Gulf of Suez: HUI 5661 (2 spec.), 128-173 mm, 17 Jan. 1972, Ras Sudar.

Description of the mediterranean specimen

Dorsal rays I-VIII-12; anal rays 12; pectoral rays 20; pelvic rays I-5; caudal rays 18; tubed lateral line 50; spinulated lateral line 18; gill rakers 2 + 8 (Table I). Body depth 8.9; head 3.8, all in SL. Snout 3.2; eye diameter 5.4; interorbital 14.3; upper jaw 2.6; lower jaw 2.3, all in head length.

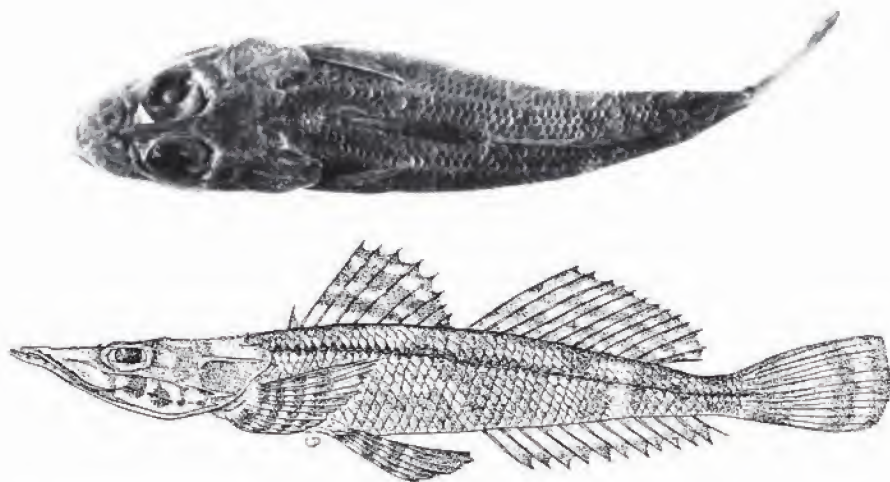


Fig. 2: *Sorsogona prionota* 136mm SL, Mediterranean, HUI 200.

Body elongated with depressed head. Series of small nuchals arranged in curved rows which lead into the formation of the first lateral line scale. Prominent ridges on the upper and lower opercular bone. Supraorbital ridge serrated, terminating with long preopercular spine. Supplemental preopercular spine less than half of preopercular spine. Supraorbital ridge with series of small spines from which begins the parietal ridge. Three large and two small preocular spines. Nasal spines small.

Lower jaw projected, with a band of small teeth. Band of small knobbed shaped teeth on the maxilla, widening towards the anterior. No teeth at the symphysis. Short vomerine and longer palatine tooth patches on each side of the mouth roof, armed with small sharp teeth.

Color (in alcohol)

Light brown with darker spinulated part of dorsal fin and remnants of darker spots on caudal and pelvic fins. A good color photograph of *Sorsogona prionota* is given by Smith and Heemstra (1986).

Remarks

This species is very common on sandy bottom in shallow waters of the coast of Elat. Juveniles and adults with ripe gonads were taken throughout the year with experimental beach seine at the depth of 0.5-1.5 m. Stomach contents of Elat specimens revealed an almost exclusively piscivore diet.

S. prionota is the only species of this genus occurring in the Red Sea. Records of *S. tuberculata* from the Red Sea (Ben-Tuvia and Steinitz, 1952; Bayoumi, 1972) were apparently misidentifications (Dor, 1984), as this species does not occur west of the Maldive Islands (Knapp, 1983).

The first platycephalid in the eastern Mediterranean was recorded by Haas and Steinitz (1947) as *Platycephalus* sp., based on a single specimen collected before 1946. This specimen is deposited in the HUI Fish Collection. Due to the isolation of the Mount Scopus Campus of the Hebrew University prior to 1967 a great part of the fish collection was inaccessible to scientific study. Therefore, when Ben-Tuvia (1953, 1966) recorded the occurrence of *Platycephalus indicus* in this region, he assumed that Haas and Steinitz' specimen was *P. indicus*. However,

reexamination of Haas and Steinitz' specimen revealed that it belongs to *S. prionota*.

In addition to the Red Sea, *S. prionota* is known from the eastern shore of Africa reaching as far south as Delagoa Bay, South Africa and as far east as Karachi, western Indian Ocean (Knapp, 1986).

The addition of two new platycephalids to the eastern Mediterranean ichthyofauna makes it appropriate to present a key to the species of this family in this region.

KEY TO THE PLATYCEPHALIDAE IN THE EASTERN MEDITERRANEAN

- 1a. Lateral line with more than 65 pored scales; left and right vomerine teeth patches fused together *Platycephalus indicus*.
- 1b. Lateral line with less than 65 pored scales; left and right vomerine teeth patches separated 2
- 2a. The first 15-20 lateral line scales bearing small spines; two, seldom three gill rakers on the upper part of the first arch; snout more than 3 times in head; eye diameter less than 5 times in head *Sorsogona prionota*.
- 2b. No lateral line scales bearing spines; a single gill raker on the upper part of the first arch; snout less than 3 times in head; eye diameter more than 5 times in head *Papilloculiceps longiceps*.

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REFERENCES

- BAYOUMI A.R., 1972. - Recent biological investigations in the Red Sea along the A.R.E. coasts. 1. On some demersal fishes of economic importance from the Red Sea, with notes on migration of fish through the Suez Canal. *Bull. Inst. Oceanogr. fish. Cairo*, 2: 138-157, 1 map.
- BEN-TUVIA A., 1953. - Mediterranean fishes of Israel. *Bull. Sea Fish. Res. Stn.*, (8): 1-40.
- BEN-TUVIA A., 1966. - Red Sea fishes recently found in the Mediterranean. *Copeia*: 254-275.
- BEN-TUVIA A. & H. STEINITZ, 1952. - Report on a collection of fishes from Eilat (Gulf of Aqaba). *Bull. Sea Fish. Res. Stn.*, 2: 1-12.
- DOR M., 1984. - CLOFRES. Checklist of the Fishes of the Red Sea. The Israel Academy of Sciences and Humanities, Jerusalem, 427pp.
- GOLANI D., 1987. - The Red Sea pufferfish, *Torquigener flavimaculosus* Hardy and Randall 1983, a new Suez Canal migrant to the eastern Mediterranean. *Senckenbergiana marit.*, 19(5/6): 339-343.
- GRUVEL A. & P. CHABANAUD, 1937. - Mission A. Gruvel dans le Canal de Suez. II. Poissons. *Mem. Inst. Egypte*, 35: 1-31, 29 figs.
- HAAS G. & H. STEINITZ., 1947. - Erythrean fishes on the Mediterranean coast of Palestine. *Nature*, 160: 28.
- HUBBS C.L. & K.F. LAGLER, 1947. - Fishes of the Great Lakes region. *Bull. Cranbrook Inst. Sci.*, 26: VI + 186pp.
- KNAPP L., 1983. - Platycephalidae: In: FAO species identification sheets for fishery purposes. Western Indian Ocean (Fishing Area 51), Vol. 3 (Fischer W. & G. Bianchi, eds.). FAO, United Nations, Rome.
- KNAPP L., 1986. - Platycephalidae: In: Smith's Sea Fishes (Smith M.M. & P.C. Heemstra, eds.), p. 482-486. Macmillan Pub. Johannesburg, South Africa.
- SMITH M.M. & P.C. HEEMSTRA, (eds.), 1986 - Smith's Sea Fishes. Macmillan Pub. Johannesburg, South Africa. 1057pp., 144 pls.
- SPANIER E. & M. GOREN, 1988. - An Indo-Pacific trunkfish *Tetrosomus gibbosus* (Linnaeus): first record of the family Ostracionidae in the Mediterranean. *J. Fish Biol.*, 32: 797-798.

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